Headquarters U.S. Air Force

Integrity - Service - Excellence

Access to Space
Needs, Options, Issues

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SAF/AQS

27 February 2002

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Today's Spacelift Systems

Atlas IIAS

Delta II

Titan IV

Titan II

Call-up:	**2 - 3 Months**	**2 Months**	**6 - 9 Months**	**>2 Months**

Cost: Approx. $10,000 per pound to LEO

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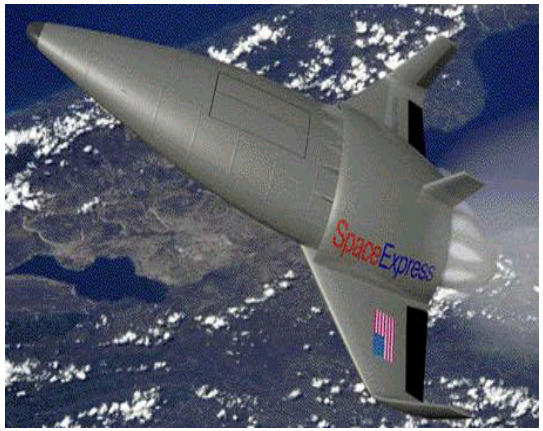
Access to Space



- What do we want?
- How best to achieve?

- What is Assured Access?
  - Defined as - Ability to launch when you need to
  - Drives either separate systems or redundancy
    - Cost
    - Systems approach across payload/booster
    - Schedule
    - Performance

System Engineering is the Key

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"Stand Down"
Space Launch vs Aircraft

- Different reactions to catastrophic failure
- SOP for Launch
  - Any launch failure grounds launch fleet until the investigation is completed or vehicle classes/components are exonerated
- SOP for Aircraft
  - Typical commercial aircraft does not ground fleet
  - Unexpected findings during routine maintenance can ground fleet
    - C-141 Wing Spar

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Access to Space Things to Consider

- **Responsiveness**
  - **Not just booster. . .**

    . . . but satellite too
- **Launch System Cost Effectiveness**
  - **SMV-like system for weapons delivery if it cost $20M per launch**
  - **SMV-like system for satellite replacement/repair for $20M**
- **Responsive/cost effective launch opens options for satellite design**
  - **Reduced need for satellite redundancy**
  - **Reduced fuel loads**
  - **Reduced hardening**

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Access to Space
Closing Thoughts

“Challenge is to define assured access;

then use a systems approach to achieve it.”